Loudoun County
Strategy for Watershed Management Solutions (SWMS)

Meeting Summary

March 23-24, 2006
Best Western Hotel, Leesburg, VA

Project Overview
The Strategy for Watersheds Management Solutions (SWMS) is designed to develop a strategic plan to manage, on a countywide basis, Loudoun's watersheds through a collaborative, consensus-building effort between various groups including government agencies (county, state, and federal), active community and citizen groups, development and commercial groups, agricultural interests, and non-governmental organizations. This strategic plan will be used to guide a subsequent, comprehensive watershed management plan.

Summary, Thursday, March 23rd *(full day)*

Opening session
Over 50 people gathered for the second meeting of the Loudoun Strategic Watershed Planning Solutions (SWMS) Stakeholders Team. Christine Gyovai and Tanya Denckla Cobb, meeting facilitators from the Institute for Environmental Negotiation (IEN) at the University of Virginia, welcomed participants and provided an overview of the process. The group reviewed the February meeting summary and group meeting protocols. The latest draft of the Declaration of Cooperation (DOC) was introduced. The DOC was emphasized as the key, final product of the SWMS process. Elements agreed upon by the SWMS Team from the February meeting were incorporated into the draft DOC, and input from this meeting will be used to further craft language, shape agreements and identify stakeholder commitments for the final DOC. Discussion points regarding the DOC follow.

- *Participation.* The group agreed that it is important to ensure diverse stakeholder representation. The facilitators informed the team that they had worked to identify and invite more people from the business, development and farming community per requests from the February meeting. A suggestion was made to invite someone from the School System, perhaps Evan Mohler, the Assistant Superintendent of Construction. It was noted that there needs to be more representation from towns. A presentation about the SWMS effort will be made to the Coalition of Loudoun Towns.
- *Monitoring.* It was reiterated that monitoring of streams countywide should be a vital part of any future watershed planning effort, and perhaps a separate section devoted to monitoring and coordination could be part of the DOC. The issue of monitoring coordination between towns, citizens, the Soil and Water Conservation District, and the County needs further discussion.
- *Barriers*. A suggestion was made to identify and focus on potential barriers or challenges to overcome for watershed planning**.**

Christine Gyovai presented an overview of the watershed planning process and the role of the DOC in this process.

SWMS Website and List Serve
Loudoun County has established a website for the SWMS effort where information, links and resources will be posted. The link is http://www.co.loudoun.va.us/b&d/watershed.htm

To facilitate dissemination of information, a SWMS email list serve was established by IEN. The list address is loudounswms@virginia.edu, and it is moderated by the facilitation team. If you have any questions or concerns, or wish to be added or removed from the list contact Jason Espie at jespie@virginia.edu.

Values, Goals and Objectives/ Actions Subcommittee Work
A subcommittee comprised of Todd Danielson, Gem Bingol, Dave Snellings and Jim Christian presented revised language for watershed planning Values, Goals, and Objectives/ Actions, as well as the rationale behind their changes. There was discussion around specific changes, including terminology suggestions for determining whether to use the phrase 'science based,' or 'technically based'. A small work group refined the language for this principle, which was supported by the SWMS Team, and is now reflected in the draft DOC, which may be found at the end of the meeting summary as Appendix A. The entire set of refined Values and Goals may be found in **Appendix A in the draft Declaration of Cooperation (DOC).** In addition, the subcommittee revisions to the objectives/actions may be found at the end of this document as **Appendix B**, and it was agreed that these would be further refined and discussed during the actual watershed planning phase, but not during this effort.

Presentation: Integrating Watershed Management with Land Use Planning in Montgomery County
Next, Mary Dolan, an Environmental Planner with the Department Parks and Recreation, Montgomery County, Maryland, gave a presentation on "Integrating Watershed Management with Land Use Planning in Montgomery County." A copy of any of the presentations can be obtained by requesting one from Jason Espie at IEN at jespie@virginia.edu. The discussion points, questions and answers, following this presentation include:

- One participant asked how Montgomery County defines parkland. Parkland is land owned by Maryland National Capital Park and Planning Commission, and partially by the county. It is dedicated land that includes stream valleys, forests, and such public facilities as ball fields and playgrounds.
- Montgomery County's rural neighborhood cluster zone requires 65-75% of dedicated open space, and it relieves developers of having to manage land by dedicating it to the park system for long-term management.
- A Team member asked how often park master plans are developed, and how Rock Creek specifically was selected. The response was that every 15 to 20 years Montgomery County updates its master plans on a rotating basis. In the case of Rock Creek it was simply time to do it; however, there was some added political pressure.
- It was asked how Montgomery County determines the effectiveness of their water quality measures and how this is conveyed to the public. Montgomery County has a continuous

water quality monitoring system, with special protection areas which are reported on every year. Their comprehensive stream strategy is updated every five years.

- One participant asked how Montgomery County develops action plans and factors in timelines to the plans. Montgomery County prepares watershed restoration action plans that are designed to address problem areas, such as stream bank stabilization, and these projects are incorporated into the county's capital improvement program.

Watershed Planning Scope

Darrell Schwalm presented the findings of a subcommittee, comprised of Darrell, Otto Gutenson, Mark Peterson, David Ward and Cliff Fairweather, that had drafted a detailed outline for the scope of watershed planning. They proposed a two-phase, three-tiered approach. The two-phase approach utilizes existing data in phase one and new data for phase two. The three-tiered approach has three watershed planning scales—regional, county wide major watersheds, and subwatersheds. Subwatersheds could be grouped into four classifications, and implementation plans for each of these four categories could be created, thus avoiding having to create one for every individual subwatershed. The three tiers could all be moved forward concurrently. The summary for the scope for watershed planning may be found in Appendix A. The comments and discussion points following this presentation include:

- Team members expressed support for a multi-stakeholder steering committee to oversee the watershed planning effort. Participants suggested that this committee could have subcommittees, but it would continue the consensus-based process with diverse stakeholders and community involvement. Stakeholders felt this was necessary because the County does not have any dedicated staff or a department charged with this responsibility, and stakeholders would like to have a continuing role in the effort.
- A concern was raised about how this watershed steering committee related to the Water Resources Technical Advisory Committee (WRTAC), and who would be responsible for oversight of the steering committee? These issues would need to be clarified.
- For organizations to give and fulfill commitments to the process, it is important they have a continuing role, such as a seat on a steering committee.
- There was general agreement and support for the proposed two-phase, three tiered approach.
- Tiers 1 and 2 are most adaptable to move forward concurrently, tier 3 may take more time to classify the four subwatersheds categories. Implementation can move forward once the main plan is done, though work on the implementation plans can commence at the same time as Tiers 1 and 2.
- There was some discussion around regional watershed planning suggested by Tier 1. It was acknowledged that watershed boundaries do not match political boundaries and that Loudoun County's watersheds are linked to their upstream and downstream neighbors. Regional neighbors include Fauquier County, Fairfax County, Prince William County, The City of Fairfax, Manassas Park and Maryland. The larger context is also driven by relationships with regional and state regulations and agencies. The final group agreement was that regional watershed planning is important, and that each plan should actively include neighbors in plan development. However, this group is not suggesting that Loudoun lead the way in a regional process, but rather Loudoun should participate actively in regional initiatives such as the Potomac Watershed Roundtable, the Metropolitan Washington Council of Governments Chesapeake Bay and Water Resources Policy

Committee, and EPA Tributary Strategies. In all aspects of watershed planning, the Team suggested that Loudoun should engage with neighbors in planning.

Presentation: Public Involvement Process in Fairfax County Watershed Planning

Matt Meyers from Fairfax County's Stormwater Planning Division presented Fairfax County's model of public involvement for watershed planning. Mr. Meyers recommended that one does not need to wait for the planning effort to conclude before beginning to involve the public. Harnessing energy for watershed planning is important, as is obtaining the assistance of professional public involvement experts. A major lesson learned for Fairfax is that if you can't get people to come to you, go to them with focused meeting groups, such as getting on the agenda of the Farm Bureau or a targeted Homeowners Association. Education is also a critical component of success, and word-of-mouth, grassroots communication networks is important in building and maintaining effective communication efforts. The discussion points, questions and answers following this presentation include:

- A participant inquired about the staffing size of the Stormwater Division group in Fairfax? Fairfax County has one communications specialist, four main project managers, some ecologists and engineers on staff, and the County also hires a variety of consultants who help facilitate, coordinate, and engineer components of specific watershed plans.
- Participants discussed the importance of Fairfax County's decision to create a dedicated source of funding for stormwater management, including watershed planning, maintenance and inspection of facilities, and construction of new capital projects, in particular the dedication of a .01 cent of the real estate transfer tax rate.
- An observation was made that in Loudoun County the citizen volunteers are very active, but in Fairfax it sounds like the County is leading the way. Is there a way to use citizens to lighten the staff role? The reply was, yes, committee members have been used very effectively and are encouraged to get out and help with outreach. However, their efforts still take overall watershed coordination efforts at the County level. The Northern Virginia Soil and Water Conservation Districts and organizations like the Audubon Naturalist Society have worked well with the county. Many county staff have been engaged in watershed activities such as leading nature walks and stream clean up events.
- Partnerships have been important in Fairfax's experience, such as partnerships with the Park Master Plans that get people to participate and be engaged.
- Fairfax County recommended hiring effective facilitators to coordinate the process.
- It was noted that any public involvement outreach should take great care to use plain language and to clearly spell out acronyms, terms, jargon, etc.

Declaration of Cooperation: Overview

Tanya Denckla Cobb presented the draft Declaration of Cooperation (DOC), which can be found in Appendix A. The DOC has been developed with the input of participants during the February meeting and through subcommittee work. The DOC will continue to be updated and refined with recommendations and input from the SWMS Team, and it will serve as the agreement document at the conclusion of the SWMS meeting effort in June. Following Tanya's overview, discussion points, comments or concerns that were raised included:

- Optimal group size for a steering committee is generally smaller than the SWMS Team, roughly 20-30 members, but there must be key representation from all interest groups.

- Participants suggested that a steering committee should be a county-wide steering group, not just for a subwatershed. Eventually if there is need and interest, there could be steering committees for subwatersheds, but not every one will need or want one. There needs to be flexibility for organizing these committees. There is a strong need to form a county-wide committee first.
- It was observed that Loudoun's parks and stream valleys are a potential resource for watershed planning, similar to schools. Parks are a means for citizens to utilize, access, and connect with water resources. Parks are important in this respect and represent an opportunity to be an integral part of watershed planning implementation and outreach.
- Participants recommended that people serving on the steering or advisory committees seek or have official organizational representation or approval to participate on a committee. Not everyone can afford to volunteer time to participate at the necessary level unless they have organizational support that allows them to allocate time. Some individuals are capable of donating the time, others less so.
- It would be useful to have an inventory of organizations that have some relationship to watersheds in Loudoun County. It was suggested that the Inventory of Watershed Activities could include such an appendix.
- The term "Stakeholder Involvement" was recommended rather than "citizen involvement."
- A participant asked if any historic preservation groups had been invited to participate. The facilitation team had contacted several groups, but had not received any response. The facilitators requested that if any of the Team members knows a specific contact at a historic preservation group, to let them know as soon as possible.

Presentation: Technical Methodologies: Assessment Methods and Modeling

Next, Leslie Shoemaker of Tetra Tech gave a presentation "Technical Methodologies: Assessment Methods and Modeling**."** The discussion points, questions and answers, following this presentation include:

- A participant asked how customized do models need to be. The reply was that there needs to be points of testing for any model set up, and a big decision point is to determine where to have long-term stream water monitoring gauging. One can set up monitoring points to extrapolate simulation points which are representative of other points or places across the watershed.
- It was asked how one accounts for geological differences. Models can be set up with test sites in different geologic zones, which do need to be separately addressed.
- One participant noted that Chesapeake Bay models have not been successful, and wondered why this is. The answer is very complex, and part of the reason is the scale involved and great variation across the Chesapeake Bay region. There are many factors at play with the failing Chesapeake Bay models. The Best Management Practice (BMP) performances are varied, size of watershed and degree of lag time can be large, input data can be incorrect, etc.
- It was asked how much data are needed before one can do effective modeling? The reply was that lots of data goes into modeling, some we can measure very well, i.e. acreage of land use, acres of soil, topographic data, etc. The issue with data gathering for modeling is that some data are more difficult or less accurate. Water quality studies are often the limiting factors for modeling, or where there is less historic data.

- The differences between probabilistic/statistical models and physical models were discussed. Physically predictive models typically use more raw data. Tetra Tech generally prefers physically based modeling approaches over probabilistic/statistical approaches.

The facilitation team then asked John Galli from the Metropolitan Washington Council of Governments (COG) to give a brief and impromptu overview of the Rapid Stream Assessment Technique (RSAT) Level III which the COG has conducted in Loudoun County. Loudoun County utilized the RSAT Level III to inform their early watershed planning efforts and stream characterization. The technique involves investigating six stream assessment parameters including stream buffers, channel condition, habitat, sediment levels, biological community indexes and chemical test (pH, temperature, bacteria, etc.). The RSAT does not do predictive modeling, but rather is an attempt to look at representative sections of stream systems to make an assessment about condition. The technique looks at ¼ mile to ½ mile lengths of stream for sampling location areas. The RSAT began in 1997 in Loudoun and they are currently finishing up Dutchman Creek, Catoctin Creek, and Piney Run main stem condition assessments. There are 36 stations scattered around the County and there is RSAT information on all the major Loudoun County subwatersheds, but not necessarily all smaller tributaries.

Summary, Friday, March 24th *(half day)*

Working Group Summaries and Discussion: Funding Strategies for Watershed Planning
Kelly Baty of Loudoun County Building and Development presented the work of a subcommittee on funding strategies and provided a handout for discussion. Their recommendations were discussed further in a small working group. After the small group working session, Christine Gyovai presented the recommendations of the funding strategy group, which the SWMS Team supported. The funding strategy may be found in Appendix A in the DOC, and governing principles for funding are below. In addition, the Team developed a list of potential sources of funding, principles to consider when seeking funding, and other related information, which is below as well.

Principles to consider with funding

- Consider pursuing easy-to-obtain sources of funding (low hanging fruit), and consider what the true costs of potential sources of funding (such as the cost for staff to administer a grant when considering sources of grant funding). Consider presenting cost comparisons of potential sources of funding to elected leaders (including costs of administering the grant and searching for it, in-kind costs, etc.) and compare that to what it would cost to develop a dedicated source of funding for watershed planning.
- Staff time is needed for grant management and acquisition.
- Implementation funding should be considered separate (but still in addition to) watershed planning funding. There may be many more potential sources of funding available for implementation.
- Tie funding requests into other funding needs to stack functions, such as obtaining funding for wetland protection, and have that project meet one of the actions in the watershed plan.
- The small group recommended to immediately pursue creating a dedicated source of funding for the watershed planning process (potentially from the County General Funds). A steady source of funding is needed for the watershed planning effort.

- Prioritize and potentially reallocate existing sources of funding.
- Consider looking at a regional comparison of tax assessments to see what other localities are paying for taxes and what is dedicated toward watershed planning.
- Plan for various phases of watershed planning as they will require different levels of funding; multiple sources of funding are more realistic/ feasible to obtain than just one source.
- Statutory requirements and implementation funding is easier to obtain than non-statutory requirements (such as specific source water protection).
- Invest money to get money: Identify several potential funding sources and then allocate resources to obtain and manage those sources of funding, such as resources for staff time to manage grants, and part of the funding strategy.
- Plan for the long-term and consider: Seed money is good; Federal grants, state grants; Tax reallocation; general operating budgets; Budget line items.

Cost Information

- Fairfax County has spent approximately $12-$15 million on watershed planning for the entire county, including: producing documents; hiring consultants; reporting to Board of Supervisors and other elected leaders; Physical Stream Assessments; GIS data and maps; outreach; modeling (approximately 30% of total costs); and estimates it will need to spend approximately $500-$800 million in costs for capital improvements for the entire county.
- Cost for Loudoun Watershed Planning might range from $3 - $20 million (very rough estimate by small group)
- Additional information on costs for specific watershed activities may be identified under the watershed inventory IEN created (contact Jason Espie for a copy at jespie@virginia.edu)

Information needs

- How much is Loudoun currently spending on watershed activities?
- How much will Loudoun County be increasing the amount of money spent on stormwater?
    - $1 million is spent annually to maintain stormwater infrastructure
- What needs to be funded?
    - Planning
    - Monitoring: Approximately $100,000/year is spent on stream stage/flow monitoring at nine sites and rainfall monitoring at 2 sites in Loudoun County (50/50 joint funding between County Department of Building & Development and USGS). Award of a grant to Loudoun County is expected soon that will partially fund a surface water and groundwater monitoring program totaling approximately $1.6 million over four years.
    - Agricultural BMPs
    - Stormwater retrofits
    - Restoration

The SWMS Team identified questions and discussion points following this presentation which included:

- Is there funding available from the Chesapeake Bay Program? Adjacent county funding? Link for information on the intent of Virginia's Chesapeake Bay Act: http://www.cblad.virginia.gov/theact.cfm
- What about funding from groups like Ducks Unlimited? The group agreed that looking for private sources of funding would be a good opportunity.
- There is a need for a dedicated source of funding from within the county. The Fairfax County model of property tax allocation is a good model. The Team agreed by consensus on this.
- This group should not recommend that the County adopt the Chesapeake Bay Preservation Act (CBPA) without careful considerations, especially in light of potential regulatory implications. Perhaps Loudoun can adopt parts of CBPA. The issue of CPBA funding and regulations needs further discussion.

Working Group Summaries and Discussion: Modeling

Tanya Denckla Cobb presented the work of the working group that addressed modeling. The proposal may be found in Appendix A in the DOC. The main thrust of the modeling proposal was to create a way for watershed planning to proceed immediately with already available data. This led to the proposal for a two-phased approach, in which Phase I uses the most simple and rudimentary models to analyze already available data. Phase II would use more complex predictive models when additional data becomes available. Phase I modeling analysis could be accomplished by in-house county staff, while Phase II would likely entail contracting services of a firm capable of using the more complex models. Discussion points following this presentation include:

- Education is needed for any audience that is to make decisions based on modeling results, such as the BOS, Planning Commission, or others, especially about the assumptions and/or limitations are for various models.
- There was some concern raised about the availability or accuracy of groundwater availability data or models.
- There was concern raised about Phase II because current county staffing levels are not sufficient to accomplish this.
- In general, the SMWS Team agreed that it is a good idea to identify what is currently desired, and capture as many ideas as possible now through this process, so this strategy can inform later modeling choices.
- Several participants stated that it is important to find ways of sharing modeling and other information with the public. This group should consider following Fairfax County's methods of modeling data and sharing results via the Internet. Any modeling information needs to be in an accessible format so the public can understand it.
- Caution was urged with regards to modeling recommendations. The Team's modeling recommendations should not be overly prescriptive, e.g., noting that these are the models being suggested but not demanded. Those decisions will need to be made at a later planning stage.
- Any information shared with the public should be written for the lay reader and in as plain language as possible.

Working Group Summaries and Discussion: Data Collection, Use and Analysis
Jason Espie of IEN presented the work of the small group that focused on data collection use and analysis. The recommendations from this group may be found in Appendix A in the DOC. The summary conclusions of this group were that:

The small working group identified a number of issues of concern regarding data.

- There is a lack of uniformity between data sets (COG, LCSA, TMDLs, etc); however, this lack of uniformity is not so great as to render the data unusable. This simply highlights the need for a data management focal point.
- There is some concern over who establishes priorities for the county GIS facilities. The county policy may need revision or greater capacity to address data needs and priorities for watershed planning.
- The integrity of any data used should be viewed with scrutiny for consistency quality control and quality assurance. Data becomes dated rather quickly. There is still potentially valuable historical trend information available even from possibly dated information.
- The agricultural land use patterns in Loudoun are dynamic and changing quickly. The land use changes are so dynamic that data integrity from different agricultural uses is questionable.
- More work is needed to connect sources and land uses with pollution loads. The DEQ TMDL monitoring is very rigorous scientific data but has a more narrow focus on bacteria and chemical loading, and does not evaluate habitat, or stream channel characterization.
- County staff are working on a number of datasets in GIS that relate to watershed planning, including forest cover and impervious surfaces. They welcome criteria for prioritization from the SWMS team for what data they should focus on first for the plan.

The working group on data identified and commented on a number of existing data and information sources.

- **County wells**. Loudoun County currently collects water level data from 8 dedicated monitoring wells and has plans to expand the well network to a total of 25 or so wells county-wide. Water quality data collected at the time of construction are available from a large number of wells throughout the county as part of the County's well permitting process. This provides a useful data source for the proposed Phase I initial assessment, but needs improvement for proposed Phase II. There are approximately 15,000 well records in the County's database and a lot of information is available but not yet analyzed.
- **Groundwater**. More data and analysis is needed before it can be used confidently in initial characterization.
- **Recharge area and water flows**. There are data gaps in this area. USGS has some stream flow data. This area needs more analysis and data collection.
- **Wetland inventory**. The county is currently working on a wetlands prediction model that will assist with delineation and mitigation methodologies to benefit the watersheds. This effort should facilitate better defined wetlands and areas for potential mitigation sites, including upland areas and perennial streams. Effort is scheduled for completion by the second half of 2006, hopefully in time for a Phase I initial assessment.
- **Dry wells**. Some data on dry wells exists in the County's database but will require work to get it into a meaningful format. .

- **Impervious Surfaces** are a priority dataset for watershed planning. The County GIS facilities are working to finalize and calibrate a countywide impervious surface analysis. These data should be accessible soon, in time for Phase I.
- **Forest cover** is also a priority dataset for watershed planning. The county GIS facilities are working to finalize and calibrate a countywide impervious surface analysis. These data should be accessible soon, in time for Phase I.
- The **Watershed Base Map** has recently been updated by the county.
- **Headwaters data** (GIS) are updated and available.
- **Soils data** (GIS) are updated (1995) and available.
- **Zoning, Easements, Land Use** data (GIS) are available.
- **Build out potential and projection** analysis based on land use, zoning have not yet been done. This could be an important analysis for watershed planning and prioritization.
- **Rainfall data** are available, but could be improved. The National Weather Service has data.

The entire group discussed the work of the data working group. The main points raised and recommendations follow:

- The county's policies regarding data from GIS could be conflicting and need further consideration and discussion.
- There was agreement that the monitoring protocols are close enough that they can be used and should be made available, but the critical need is for a data management 'guru' to pull it all together. This data management point is an important component of any future watershed plan.
- The US Geological Survey (USGS) has data experts who can evaluate data. USGS has a cooperative program with DEQ. USGS has access to base flow and storm data that can be collected, and which can be used for modeling. The USGS also has modelers that could participate in process. They would be willing to comment on recommendations for data.
- Quality assurance, quality control (QA/QC) needs to be addressed by any data management coordinator. The data management coordinator would come up with standard protocols for data collection and management, or bridges between different protocols. The different protocols currently being used are not too far apart to be incompatible. It was noted that the Loudoun Watershed Watch closely follows QA/QC procedures for data collection.
- DEQ data collection has legal implications since it is related to TMDLs. The county may not need to rise to data level standards employed by DEQ. There are many more data sets that the county will want, such as habitat, channel profile, etc., that DEQ does not even have. Loudoun watershed plans should use citizen volunteer data.
- There was a recommendation to build on the Goose Creek Vulnerability Study data.
- It was noted that data should be updated on a regular basis to be useful.
- It was noted that data should be available to public in an understandable format.
- It was cautioned that the DOC is supposed to be a broad, strategic framework document and that this discussion of more detailed data needs and management is more appropriate for an actual watershed plan. This DOC should simply explain why data needs to be available and managed, and make some main recommendations, but should not go into this level of detail. The group agreed that only the primary concepts and recommendations above, i.e., the need for a data management coordinator, would go into the DOC. Other

details from this working group just reside in the meeting summary as background for future plan guidance.

DOC Discussions: County Coordination

The group continued its discussion of the DOC around the topic of County Coordination. Edits were made directly to the DOC in the group session, and the final recommendations can be found in the DOC in Appendix A. What follows are some key points raised during the discussions on county coordination.

- There is the need for more emphasis on staffing levels in the DOC.
- There was a question raised whether this section was restricted to Loudoun County employees. It was suggested that this section might also include private partners.
- There was a concern raised that whoever becomes or employs an environmental coordinator should report directly to the County Administrator, and should not be under a specific department head. While others suggested that it might be more effective for an entire county department to be given authority and responsibility, there was general agreement that the watershed planning coordinator needs to be able to work with all departments, have access to all departments, and to not be constrained by the goals of one department. Reporting and responsibilities for any coordinator need to be clearly spelled out. This aspect of county coordination needs further thought and discussion.

DOC Discussions: Goals and Values (DOC)

The group continued its discussion of the DOC around the topic of goals and values. Gem Bingol presented language that she was asked to edit on "scientific data accepted by professional scientists in the field." Bruce McGranahan presented language he was asked to edit concerning "existing regulation." In both cases, edits have been made directly to the DOC, which may be found in Appendix A. What follows are some key points raised during the discussions on goals and values.

- There was some discussion surrounding inclusion of the concept of smart growth in the DOC. Some felt that since this was such a highly cliché term, susceptible to various interpretations that it is necessary for this group to understand a shared definition. A number of participants agreed that it was an important concept, and that it would be a shame to remove or avoid using it because of uncertainty regarding its meaning. The following definition from the smart growth network/EPA was proposed for consideration.

  "*Smart growth is development that serves the economy, the community, and the environment. It changes the terms of the development debate away from the traditional growth/no growth question to how and where should new development be accommodated. Smart Growth is a planning concept or philosophy that attempts to make best use of land and infrastructure in order to derive economic and environmental benefits using compact design and other proven techniques*."

  For more definition visit this web site, http://www.epa.gov/smartgrowth. Some felt this was important to include but perhaps under the objectives section, where it is currently located and can be found in Appendix B. Though there was general approval for this term there was not clear consensus on adoption of this definition. Further discussion is needed.
- The facilitators clarified that the objectives and specific actions are not presented as consensus but rather as discussion items of the SWMS Team.
- Objective number 3 about regulation will need further discussion during the watershed planning phase.

- Someone inquired about the specific goals of the CBPA. Katherine Mull from the Northern Virginia Regional Commission provided the following information: Link for information on the intent of Virginia's Chesapeake Bay Act: http://www.cblad.virginia.gov/theact.cfm (Click on: Section 10.1-2100. Cooperative state-local program for a good summary of the intent of the Act.)
- A few new values and goals were proposed to the group, and they were adopted and revised by the goals committee, and they may be found in Appendix A under Section B.

Presentation: County Parks -- Plans for Public Uses for Stream Valley Trails
Mark Novak, of Loudoun County's Department of Parks, Recreation, and Community Service (PRCS), gave an overview of the Plans for Public Uses for Stream Valley Trails in Loudoun County. Mr. Novak described the vision concepts of PRCS and green infrastructure components and policies of the General Plan. Mr. Novak then described current implementation projects, including the Potomac Heritage National Scenic Trail and the Goose Creek Little River navigation. Mr. Novak answered questions about the Potomac Heritage National Scenic Trail and ways to incorporate the Stream Valley Trails into the watershed planning effort, which the group expressed support for.

Presentation: Groundwater Presentation
Glen Rubis of Loudoun County Building and Development, and Mark Bennett of the USGS made a joint presentation on "Groundwater, Stream Flow, and Hydrologic Monitoring in Loudoun County, VA." Mr. Rubis covered the objectives and activities of the Water Resources Monitoring Program, Department of Building and Development. Mr. Bennett provided an overview of hydrologic systems, and USGS data. He highlighted a useful USGS publication "Ground Water is Vital to Surface-Water Systems" available on the Internet, http://water.usgs.gov/pubs/circ/circ1139. USGS water resources data are available from this website, http://va.water.usgs.gov/. Some questions and discussion points following this presentation include:

- It was recognized that Loudoun County relies on real-time USGS data for emergency management, for example to know when water levels are rising to a level where they would cover certain roads.
- Loudoun County's Erosion and Sediment control program also uses USGS data and keeps track of precipitation gauges.
- The County's database has records on approximately 15,000 wells, some of which include water quality, water yield, well depth and other information. A 5-year backlog of well data from paper records was entered into the database between 2001-2004 and currently data are added as new wells are constructed. Analyses of these well data are important for watershed planning. A presentation was made to the BOS last summer on some initial well data analysis that found that the average yield has stayed about the same but wells are on average getting deeper.
- Katherine Mull from the Northern Virginia Regional Commission provided this website link informed, http://chesapeake.usgs.gov/workshop22206.html that contains presentations and papers on factors affecting water quality that can potentially affect management decisions for watershed planning (ground water residence time, in-stream loss of nitrogen, sediment transport, etc.)

DOC Discussion: Commitments
The facilitation team introduced the Commitments portion of the DOC, which will indicate the continuing roles of various stakeholders. In preparation for the May meeting, it is important for each Team participant to brainstorm with his/her organization potential commitments that could be made for the continuing watershed planning effort. Every stakeholder has different resources and possible responsibilities relating to watershed planning. Some groups are more involved with volunteer and citizen outreach; others have more of a mandate to coordinate local government programs. There are many activities that organizations are already doing that simply can be folded into a commitments statement. Gem Bingol shared with the group a sample draft commitment statement from the Piedmont Environmental Council. The group identified key elements that could be considered for a commitment statement:

- Conduct or support citizen education and outreach
- Conduct or provide equipment for stream monitoring
- Conduct or support stream cleanups
- Conduct or support planting of riparian buffers
- Conduct or support stream assessment and mapping activities
- Participate in the proposed Loudoun Watershed Steering Committee
- Participate in Subwatershed Implementation Efforts
- Host a neighborhood party about watershed issues

DOC Discussion: Vision Statement
Bruce McGranahan of Loudoun County Department of Planning and George McGregor of Reed Smith LLP worked to draft a vision statement for the watershed effort. They assessed the goals, values, and principles already identified by the SWMS team, and drew upon that language in drafting a vision statement. The following statement was read and was given preliminary consensus approval. The Team requested more time to digest the draft vision, and will consider it for adoption at its next meeting.

> *The SWMS Team envisions Loudoun County as a place where people appreciate the beauty and value of their natural and cultural resources; enjoy a robust economy, recreate in swimmable and fishable waters, and respect diverse natural habitats. Loudoun's citizens are informed, energized, active stewards committed to healthy watersheds for this and future generations.*

Closing Session Discussion
The facilitation team led a final wrap-up session to discuss elements of the DOC, the small working group reports, and next steps and timelines.

- A concern was raised about funding in general. There are different costs associated with different elements of a watershed plan, and resource allocation will need to be put before the Board of Supervisors. It is important to distinguish funding sources that may actually cost the county more to administer and some that are more affordable. For example, grants should not necessarily be considered 'free money' for they can consume significant amounts of staff resources in administrative oversight.
- Participants were asked to look closely at the DOC, and to understand that it is very similar in form to a Memorandum of Understanding (MOU).
- A general question of uncertainty was raised about this SWMS process. The outcomes are clear, but it was unclear how to get there. What about the plan? A metaphorical

explanation was offered that the SWMS team is similar to architects providing design guidance for builders and engineers on a building concept. It is the engineers and builders who then take these conceptual design guidelines and create the actual plan and implement it.

- A watershed planning opportunity was identified: to coordinate or integrate the watershed plan with Loudoun County's Heritage Preservation Plan, specifically Chapter 5 which deals with heritage corridors and waterways that influenced historic settlement patterns. Information on the Heritage Preservation Plan is available from this web site: http://www.loudoun.gov/compplan/historic.htm
- The Team was informed that County Administrator Kirby Bowers, though absent, expressed his regrets for being unable to attend and his support for process.

Next Meetings

A request from the Team was discussed for an additional SWMS Team meeting, as participants were concerned that one final meeting would not be sufficient to give the DOC full consideration. In consultation with Kelly Baty (SWMS Team Project Manager) an additional SWMS Team meeting was agreed to by the entire group. Two more SMWS meetings are scheduled. The next SWMS team meeting will be on **Thursday, May 4th from 9:00 - 4:30 pm**. The additional meeting is now scheduled for **Tuesday, June 6th from 9:00 - 4:30 pm**. Both meetings will be held at the Best Western Hotel in Leesburg.

Timeline for immediate next steps

- A new draft the DOC will be sent to a small review team by April 4. Volunteers for this team were: *Cliff Fairweather (Ed Gorski as alternate), George McGregor, Darrell Schwalm, Bruce McGranahan, and Todd Danielson.*
- These Subcommittee volunteers need to be available to review the DOC during the period of April 4-10.
- Subcommittee comments are due back by April 11, including all other subcommittee comments.
- Incorporating the comments of this subcommittee, the next draft of the DOC will be sent to the full SWMS team via the email list serve by April 14th.
- Comments are due back from the entire SWMS team by April 19th.
- An updated DOC will be sent out by April 27th in preparation for the May 4th meeting.

Other arrangements and announcements

- It was asked if anyone was interested in Gilford Farm LID site tour in Culpepper, to be arranged for May 3rd, the day before next meeting. Eight participants indicated interest. A tour may be arranged if possible with the Culpepper Soil and Water Conservation District.
- It was announced that the Wetland Studies and Solutions, Inc. (WSSI) headquarters office in Gainesville has a number of LID installations in place, and Mark Headly of WSSI generously offered to give anyone a tour.
- Ed Gorski generously extended an open invitation to take anyone canoeing.
- John Galli of the COG will explore whether it is appropriate to add any zoning language to the goals and values section of the DOC, and Bruce McGranahan and David Ward will explore available data compatibility and potential for use.

- Inventory of Watershed Activities. Jason Espie of IEN is planning to finalize this inventory for presentation at the May 4th meeting, and called upon participants to send him their edits, suggestions, additions, or **any comments by April 21, 2006.**

Meeting Participants

March 23-24, 2006

Water Supply
Todd Danielson, Loudoun County Sanitation Authority (LCSA)

Federal & State Agencies
Mark R. Bennett, U.S. Geological Survey - Director of Water Resource
Debra Gutenson, U.S. Environmental Protection Agency - Office of Ground Water and Drinking Water
Otto Gutenson, U.S. Environmental Protection Agency - Wetland and Waters Program
Patricia (Pat) McIlvaine, Virginia State Soil and Water Conservation Districts
Pawan Sarang, P.E., Virginia Department of Transportation - NoVa Location and Design
Robert Swanson, DEQ alternate
Chris Van Vlack, Virginia State Soil and Water Conservation Districts
Kelley Wagner, Virginia Department of Forestry – Stream Resources
Larry Wilkinson, U.S. Department of Agriculture, NRCS

Loudoun County
Wm. Kelly Baty, Loudoun County Building & Development
Alex Blackburn, Loudoun County Building & Development
Matt Brown, Loudoun County Building & Development
Dennis Cumbie, Loudoun County Building & Development
Ed Erwin, Loudoun County Building & Development
Charlie Faust, BOS Appointed, Water Resources Technical Advisory Committee
Joe Gorney, Loudoun County Planning Department
Steve Kayser, Loudoun County Building & Development, Erosion & Sediment Control
Sally Kurtz, Loudoun County Board of Supervisors
Bruce McGranahan, Loudoun County Planning Department
Mark Novak, Loudoun County Parks and Recreation
Glen Rubis, Loudoun County Building & Development
Todd Taylor, Loudoun County Building & Development
David Ward, Loudoun County Public Works
Randy Williford, Loudoun County Public Works

Loudoun Public & Agricultural Groups
Chris Hatch, Loudoun County Farm Bureau
Donna Rogers, Loudoun County Farm Bureau

Conservation & Environmental Groups
Gem Bingol, Piedmont Environmental Council (PEC)
Helen Casey, Goose Creek Scenic River Advisory Committee
Phil Daley, Loudoun Wildlife Conservancy
Cliff Fairweather, Audubon Naturalist Society
Stella Cook, Audubon Naturalist Society (alternate)
Fred W. Fox, Loudoun Watershed Watch (alternate)
Ed Gorski, Piedmont Environmental Council (PEC)
Ann Larson, Catoctin Scenic River Advisory Committee
Darrell Schwalm, Loudoun Watershed Watch

Development and Business Community
Mark Headly, Wetland Studies and Solutions, Inc. (WSSI)
George McGregor, Reed Smith LLP
Chris Monahan, VA Paving Company
Mark Peterson, Luck Stone Corporation
David Snellings, Greenvest L.L.C
Jim Stepahin, Heavy Construction Contractors Association

Regional Government
Charles Baummer, Metropolitan Washington Airport Authority
John Galli, Metropolitan Washington Council of Governments
Matt Meyers, Fairfax County, Stormwater Planning Division
Katherine K. Mull, Northern Virginia Regional Commission
Mary Dolan, Montgomery County Department of Parks and Planning (Guest Presenter)
Paul Shirey, Fairfax County, Department of Public Works and Environmental Services

Facilitation & Support
Tanya Denckla Cobb, Institute for Environmental Negotiation (IEN), UVA
Jason Espie, IEN, UVA
Christine Muehlman Gyovai, IEN, UVA
Leslie Schumaker, Tetra Tech (Guest Presenter)

Appendix A

The Loudoun County Strategic Watershed Management Solutions (SWMS)

February-June, 2006

"DECLARATION OF COOPERATION"

********DRAFT 4/14/06*********

I. BACKGROUND

The Loudoun Strategic Watershed Management Solutions (SWMS) is a collaborative initiative to coordinate existing watershed efforts and define a shared vision for managing Loudoun County's watersheds. A stakeholder group was convened by Loudoun County's Department of Building and Development and facilitated by the University of Virginia's Institute for Environmental Negotiation (IEN). Funding for the project is provided by the National Fish and Wildlife Foundation, U.S. Environmental Protection Agency, and Loudoun County.

The first step in the SWMS initiative was the formation of a stakeholder group called the "SWMS Team." During January and February 2006, IEN conducted 17 interviews with stakeholders representing different perspectives and interests about the development of a strategy for watershed planning in Loudoun County. These interviews were conducted in preparation for the first SWMS Team meeting to help shape the agenda, identify the kind of information and speakers needed at the first meeting, inventory activities and studies relevant to Loudoun's Watershed Planning effort, and identify issues and concerns that would need to be discussed. With this information, IEN developed a summary of its findings as well as an inventory of watershed activities, studies, and sources of data. Drawing on recommendations from county staff and a number of stakeholders interviewed during the convening process, over 125 people who represent the interests of federal, state, regional, local government (County and Towns), water supply, environmental and conservation groups, farming, business, development, and homeowner associations were invited to participate. Of those invited, approximately 65 (Number to be filled in by IEN at the end of the process) people participated in the four SWMS meetings, February 22-23, March 23-24, May 4, and June 6, in which decisions were made by consensus.

Through the SWMS meetings and after much deliberation, discussion, and hard work, the Team developed a number of key recommendations regarding the development of a Watershed Plan for Loudoun County. The key areas of agreement developed by the SWMS Team are below, with details about each area of agreement following in the body of the Declaration of Cooperation (DOC).

This DOC represents significant thought and effort on the part of participating stakeholders, and is intended to provide parameters and guidance for the Watershed Planning process. The SWMS Team understands that the Watershed Planning process will need to use an adaptive management approach in which changes in the planning process are made as experience is gained and lessons learned. The agreements reached represent recommendations by the SWMS Team, and it is

recognized they may need to be modified to reflect revised timelines or available resources. The Team recommends the establishment of a steering committee that will support the adaptive management approach by providing a mechanism to collaboratively make changes to the recommendations contained in this Declaration of Cooperation.

KEY AREAS OF AGREEMENT

II. GUIDING PRINCIPLES, VISION, VALUES, AND GOALS

The following guiding principles, vision, values, and goals are recommended for a watershed plan for Loudoun County.

a. **Principles** – The following are principles recommended to guide the Watershed Management Planning process:

1. Create a realistic, achievable, implementable, balanced plan based on scientific data and models that are accepted by professional scientists in the field.
2. Create a flexible, dynamic, and simple plan.
3. Address resources for implementation in the Watershed Planning process (monetary, in-kind and staff).
4. Consider economic development, jobs, housing (current and future), agriculture, and conservation land needs in the creation of the plan.
5. Provide a plan based on consensus among the diverse views.
6. Provide a collaborative approach that allows stakeholders to work together to provide support and not duplicate individual efforts or projects.

b. **Vision** -- The following vision is recommended for Loudoun County's watershed plan:

Loudoun County is a place where people appreciate the beauty and value of their natural and cultural resources; enjoy a robust economy, recreate in swimmable and fishable waters, and respect diverse natural habitats. Loudoun's citizens are informed, energized, active stewards committed to healthy watersheds for this and future generations.

c. **Values** -- The following values are recommended to drive Loudoun County's Watershed Planning effort and to meet the needs of future generations:

1. Clean drinking water is available for all Loudoun citizens.
2. The needs of future generations are met. [One person suggested deleting this phrase and moving it above.]
3. All Loudoun citizens are engaged, informed, and active in watershed planning.
4. Economic development opportunities are preserved in the watersheds.
5. Nature and natural systems (i.e. buffers) essential for good water quality are protected in all Loudoun streams.
6. Stewardship is recognized as a community responsibility and encouraged in every watershed.
7. Recreational use of the water resources is available for all Loudoun citizens.

8. Healthy stream habitats and aquatic life populations are protected in all Loudoun streams.
9. Agricultural heritage is preserved and its future viability is ensured through appropriate planning and zoning. [addition]

d. Goals -- The following broad goals are recommended for Loudoun County's Watershed Planning effort:

1. Protect public and environmental health.
2. Manage runoff in accordance with generally accepted practices to protect stream channel processes and protect and restore water quality, stream health, and groundwater resources.
3. Protect water supply for current and future demands for both ground water and surface water, through private and public means (e.g., regulations and voluntary efforts).
4. Protect and restore diverse habitats and riparian buffers to provide healthy streams and public recreation opportunities.
5. Preserve the economic value of healthy watersheds by protecting the natural functions of watersheds including wetlands and floodplains.
6. Preserve and enhance economic-related opportunities in Loudoun County, including the preservation of agriculture as a significant economic contributor, through the implementation of goal-specific, land use policies and zoning strategies. [Language modified from original]. [One person asked "Does this cover construction of homes?']
7. Raise awareness of citizens, engage citizens in planning efforts, and utilize citizen input.
8. Promote cooperation, and coordinate government and non-government watershed management efforts, data, and resources within the watersheds.
9. Utilize existing regulations and ordinances where possible, and develop new regulatory tools that are necessary to support the stated goals of the watershed management plan.
10. Promote cooperation between government entities to improve water resource quality. [One person suggested deleting this phrase and adding it above to #8.]

III. Scope and Overall Process for Loudoun Watershed Planning

A. Two-Phased Approach -- The SWMS Team recommends a two-phased approach to develop watershed plans. This phased approach will provide the County with a way to immediately begin watershed planning using currently available data at a minimum cost. It will also allow the County to enhance the quality and sophistication of its plans over time as grant and other funding becomes available.

B. Phase I -- Watershed management planning can proceed immediately using already acquired or existing data in a cost-effective manner. In this phase, three different types

of plans are recommended in recognition of the different scope and scale of legal requirements and needs for watershed planning.

1. **Tier I: Regional Plan**: Loudoun County watersheds extend into adjoining counties, and are part of the larger Chesapeake Bay Watershed. It is recommended that a Regional Watershed Plan defined by the geographic boundaries of the watersheds be developed in cooperation with neighboring jurisdictions and regional authorities. The planning process for Loudoun should begin with Fairfax County who has begun developing watershed plans, and continued with other authorities as the opportunity arises.

2. **Tier II: Major Watershed Plans**: Individual Watershed Management Plans that are defined by both the political boundaries of the County and watershed boundaries are recommended to be developed for the twelve major watersheds in Loudoun County. These plans will involve working with stakeholders within those watersheds, and providing communication and coordination regarding those plans at the County-wide level. Individual watershed management plans, using existing data, should be developed for: (1) Sugarland Run, (2) Broad Run, (3) Lower Goose Creek and Little River, (4) Beaverdam Creek, (5) Middle Goose Creek and Panther Skin Creek, (6) North Fork Goose Creek, (7) Upper Goose Creek and Gap Run, (8) Limestone Branch, (9) Catoctin Creek, (10) Dutchman's Creek and Piney Run, (11) Upper Bull Run, and (12) Cub Run.

3. **Tier III: Subwatershed Implementation Plans**: Preliminary Subwatershed Implementation Plans should be developed as supplements to each of the major watershed plans. The subwatershed plans should be defined by both subwatershed boundaries and characterization of the subwatershed, selected from one of four possible characterizations defined by the Center for Watershed Protection. Each subwatershed plan will provide implementation strategies to protect and restore the water quality and stream health in specific portions of the watershed. The order in which these supplemental plans are developed should be based on a prioritization system that selects the "most vulnerable" watersheds based on projected future impacts, with preference given to headwater subwatersheds, drinking water sources, and vulnerability potential.

4. **Concurrent Planning Approach** -- The regional watershed management plan, the 12 major watershed management plans, and the preliminary subwatershed implementation plans should be developed in parallel, at the same time, using currently existing data, beginning as soon as practicable.

C. Phase II – More sophisticated watershed management plans can be developed when County or other resources are available to collect and analyze additional data, based on established priorities. The data collection could focus on: (1) filling identified data gaps, (2) developing sophisticated predictive models to assess degradation impacts under varying loading and growth conditions (see Section IV below), (3) developing detailed subwatershed implementation plans based on stream surveys, and (4) assessing progress in achieving planning goals based on water quality and stream health data collected under probability and trend monitoring approaches.

1. **Detailed Field Surveys** -- Additional field surveys should be conducted in each subwatershed to provide updated and more detailed data. These detailed field

surveys, which could use the Center for Watershed Protection's Rapid Stream Assessment Technique (RSAT), should be used to assess the pathways of runoff to streams, hydrological impacts of increased runoff, impacts on aquatic life, impacts on habitat, and geomorphological impacts.

2. **Updated Implementation Plans** -- These field survey results can be used to revise the preliminary subwatershed implementation plans into more detailed, long-term implementation plans.

D. Collaborative Governance Approach – A County-wide Stakeholder Steering Committee should be established to provide policy and technical oversight for the watershed management process. The Stakeholder Steering Committee can guide implementation of this Declaration of Cooperation and ensure that an "adaptive management" approach will be used to make changes to the watershed planning process as experience is gained and lessons learned. Technical subcommittees and stakeholder committee should be established to provide input and guidance to the different types of watershed plans as needed. The SWMS Team also recommends establishing subwatershed committees, if needed, with liaisons from the subwatershed committees serving on the County-wide Stakeholder Steering Committee.

IV. Modeling

A. Decision-Making Tool -- Computer modeling can be a helpful decision-making tool for the watershed planning process. It can be used to forecast the impact of different management strategies, and therefore help in the selection of preferred management practices. The principal use envisioned for modeling in the Loudoun Watershed Planning process is to provide better information for decisions regarding water quality and water quantity (water supply planning) for both surface and ground water.

1. **Surface Water Modeling** -- For surface water quality and quantity, the models can offer predictive guidance for aquatic, drinking, and recreational values of streams, specifically addressing at least sediment, nutrients, and flow variation ("flashiness").

2. **Ground Water Modeling** -- For ground water quality and quantity, the models can offer predictive guidance for fecal nonpoint source pollution and base flow, but will not generally be able to answer the question of ground water availability in western portions of the County.

3. **Modeling Choices** -- The Team recognizes that there are a wide range of models available that can vary greatly in cost, complexity, ease of application, and ability to use in-house. In light of the above, the Team recommends that the County adopt a phased approach, as described below. In addition, the Team recommends that the modeling information be shared with the public in an accessible and understandable format, perhaps via the Internet.

B. Phase I Modeling -- The Team recommends that the County begin its watershed planning with a least-cost predictive tool that does not require data beyond what is already available, that is simple, and can be used in-house by Loudoun County staff.

1. **Water Quality** -- For predicting impacts of different management options on water quality, consider selecting either a basic spreadsheet (such as STEPL) or the slightly more sophisticated Generalized Watershed Loading Function (GWLF) model, both of which will address nitrogen, phosphorous, and

sediment. Experience in other localities has shown it is important that whichever model the County selects, the same model be applied across the entire County to ensure consistency of analysis and predictive value.

2. **Water Quantity** -- For predicting impacts of different management options on water quantity, consider selecting a spreadsheet model to do "water balance accounting." It is understood that this would allow the County to make only rough predictive calculations of impacts on water quantity at an early phase of watershed planning. However, as more data is gathered over time, the County may be able to graduate to a more refined model to make more refined calculations.

3. **Ground Water** -- For predicting impacts of different management options on groundwater, it is recommended that existing data are compiled and analyzed, as much data is already available but has not been analyzed. It is also important that existing data and analyses already undertaken by agencies such as the USGS and DEQ be obtained by the County to avoid duplication of effort. The USGS has agreed to provide input and assistance in the County's modeling and data synchronization efforts.

4. **Floodplains** -- For predicting impacts of different management options on floodplains, consider obtaining existing modeling from FEMA to incorporate into the plan.

C. Phase II Modeling -- As the County progresses in its Watershed Management Planning effort, it may need more sophisticated predictive capability. When more data are gathered and becomes available, the County should consider the following approaches which may require additional funding and staffing capacity to accomplish.

1. Water Quality and Quantity -- For more sophisticated predictions of impacts of different management options on both water quality and quantity, the County should first inventory data available to decide which of the more sophisticated models would be most feasible to use. The current choices are either EPA's dynamic rainfall-runoff simulation model (SWMM) or the Hydrologic Simulation Program-Fortran model (HSPF). Both models are appropriate for Loudoun's mix of urban/rural land use, and could be used to predict nutrients, sediments, as well as flow variation and base flow. The HSPF model already has been used to develop two TMDLs for fecal coliform in Loudoun County, and so could be adapted for these broader predictive purposes as well as expanded to provide coverage for the entire County via extrapolation. As a result, the Team suggests that the HSPF might be preferable to the SWMM model, but the County should make this determination when the time is appropriate. The Team also suggests the County consider using a flexible, selective approach in which more sophisticated models would be used for more complex, difficult watersheds.

2. Ground Water -- For more sophisticated predictions of impacts of different management options on ground water, the County needs to establish long-term monitoring wells and gauges. When more data becomes available, including geological data, the County could begin to conceptualize its ground water system. The Team recognizes that the movement and availability of ground

water is a difficult science, and that it will be at least five years before the a predictive model for ground water can be developed. It is therefore recommended that other tools for decision-making be developed in the near-term. Specifically, the Team recommends that the County consider selecting either the MOD-FLOW or SUTRA 3-D models for use as early as possible in Phase II. Either of these tools can be used to identify: (a) areas at risk of low base flow; and (b) areas important for ground water recharge.

D. **Phase III Modeling** -- For groundwater, the Team also recommends a later Phase III modeling effort in which the County would eventually develop and use a ground water model that can predict availability of groundwater.

V. Data Management and Protocols

A. Current Data Availability -- Data are a major component of the watershed plan, and there is a need for more attention and resources to be directed to data management and acquisition. The SWMS Team agrees that data and studies currently available are sufficient to provide the initial prioritization and snapshot assessment envisioned in Phase I of the proposed Scope. However, the SWMS Team recommends that the integrity of existing data be examined carefully before using it in any assessment as not all existing data is relevant to the assessment's purpose, and some is old or perhaps faulty.

B. Central Database and Data Coordinator/ Office -- A common database needs to be created to store water quality and quantity data from the many data collection entities working in the County. It is important that there be one data "coordinator" or management focal point that assembles data and establishes standard data collection and management protocols. The Team also recommends that the County designate a new position or office with the task of providing central data coordination and management because volunteer efforts are not sufficient to accomplish this task.

C. Monitoring -- A combination of monitoring approaches is needed. One approach, suggested for use during Phase I of the Scope, is to use probabilistic-based (statistical) monitoring, applied Countywide to provide baseline, and snapshot data on watershed conditions for tracking progress. Another important approach, suggested for Phase II of the Scope, is to establish an on-going system of permanent monitoring stations to monitor progress over time. Lastly, the SWMS Team recommends analyzing and reporting monitoring data on a periodic basis to ensure relevant data are being collected.

D. Stream Survey Data -- Stream surveys will eventually be needed to develop data needed for detailed implementation plans to protect or restore priority stream segments identified in subwatershed plans.

E. Data Collection Needs -- It is important that a number of data and stream quality studies be incorporated into the assessment and watershed characterization effort. There is a need decide upon a means to quickly gather and assess these existing data for use in the County-wide assessment based on costs and the needs listed below. All new data collection should follow data collection protocols used by existing studies, or State-endorsed monitoring guidelines.

1. The County should consider making a commitment to inventory, map and monitor all water resources within the County's watersheds.

2. There is a need to establish a network of on-going monitoring stations to supplement the County-wide assessment and subwatershed characterization and to assist with the evaluation and updating of the Watershed Plans over the years.

3. A flow gauging network should be established to help monitor in-stream flow because maintaining ecologically healthy streams is a concern for the future of Loudoun's waterways.

4. GIS data needs to be incorporated into the Watershed Management Planning effort, and a means found for making GIS data available to the public in an understandable format.

VI. Criteria for Prioritizing Problems and the Development of Subwatershed Plans

A. Need for Criteria-- The SWMS Team agreed that it is important to establish County-wide prioritization criteria to guide the Watershed Planning effort. Specifically, prioritization criteria should help identify which subwatershed Plans are developed first, and where implementation should first be initiated. It is understood that any plan should be implemented incrementally so that identified priority areas can be addressed first.

B. Criteria Guidelines -- The Team recommends the following prioritization criteria, and notes that these criteria will need to be weighted or scored to help establish priorities.

1. Give priority to rectifying pre-existing conditions (retrofits).
2. Prioritize areas needed for source water protection.
3. Give priority to drinking water supply recharge areas.
4. Give top priority to meeting state and federal regulation requirements.
5. Give high priority to development-pressure areas, or areas on the cusp of change for future build-out.
6. Give priority to sensitive areas, such as headwaters, groundwater recharge areas, and wetlands.
7. Give priority to situations where human health concerns exists due to possible septic or groundwater contamination.
8. Prioritization should take into account the different characterizations amongst sub-watersheds such as size, urban, rural, East, West, soil type, farming, drinking water supply shed, etc.
9. Priority should be given to protecting undeveloped or minimally developed subwatersheds.
10. Give consideration to traffic impacts and stream crossings in VDOT corridors.
11. Give priority to implementing projects that are the most efficient and will get the most 'bang-for-the-buck' such as watersheds with the greatest potential for efficient reduction of nutrients (MS4 offsets, nutrient trading).

VII. Funding

A. Funding Strategy -- Funding is a critical part of the Watershed Planning process, and the Team's recommendation for a funding strategy for the Watershed Planning process is below. In addition, the Team developed a list of potential sources of funding, principles to consider when seeking funding, and other related information. This information may be found in the March 2006 SWMS meeting summary.

B. Dedicated Funding -- The Team emphasizes the need for a dedicated source of funding for watershed planning from within the County. There are many potential benefits from watershed planning, such as being aware, proactive and prepared for new stormwater and nutrient cap regulations that are forthcoming. Creating a dedicated source of funding is important to ensure a successful Watershed Management Planning effort to help meet new regulatory compliance requirements. The Fairfax County model of property tax allocation is a good model of successful watershed planning funding. Two strategies were identified as potential dedicated sources of funding:

1. Earmark a portion of the "rollback" tax (the tax assessed when property land use change is designated).
2. Consider reducing the personal property tax rate reduction that partially offsets the increase in assessed value ("equalize less") and consider earmarking a portion of that for watershed planning.

C. Grant Funding -- Consider identifying sources of grant funding and corporate sponsorship for both a short-term and long-term source of funding for watershed planning, but especially in the short-term while a long-term funding strategy is being created. The SWMS Team recognizes that significant staff time is required to administer grants.

D. Targeted Funding-- Consider developing sources of funding for critical areas identified in the watershed plan. In addition, consider phases in watershed planning when looking for and dedicating sources of funding, as fewer financial resources may be needed for Phase I than Phase II.

E. Existing Funding-- Evaluate, prioritize, and possibly reallocate existing funding resources to determine if those resources could be applied to watershed planning.

F. Bay Act Funding-- Consider the possibility of Loudoun County adopting the Chesapeake Bay Preservation Act (CBPA), which may be a potential source of funding. [The Team notes that extra funding could be available to Loudoun County because no other Counties adjacent to Loudoun have yet adopted the CBPA. – one person suggested deleting this sentence.] However, there could be regulatory implications that would require careful consideration.

G. In-kind-- Consider significant financial contributions from in-kind sources such as citizen groups and the development community.

VIII. Stakeholder/ Citizen Involvement In the Watershed Planning Effort

A. Valuing Outcomes -- The SWMS Team agreed that the success of watershed management planning in Loudoun County ultimately depends on people valuing the outcomes and contributing to the watershed plan implementation activities. The planning process should therefore involve people in the development of the Watershed Management Plans to enhance the plan's value to citizens.

B. Engaging Citizens -- Overall, the Team agreed that it is essential for the planning process to create ways that make it easy for Loudoun citizens to be informed, engaged, and involved. Ideas might include having planning leaders attend meetings of different citizens' groups to reach citizens who might be difficult to reach otherwise, creating a website, conducting workshops, creating other forums to engage citizens, and providing educational resources. It is important to "go beyond the choir" to engage citizens who might not otherwise be involved in the Watershed Management Planning process and Plan implementation. Outreach strategies also need to consider social justice issues to ensure that actual implementation strategies are accessible to people of all socio-economic levels.

C. Methods to Involve Stakeholders -- To ensure stakeholder involvement throughout planning and implementation, the Team recommends that the County adopt the following approaches:

1. Create an inventory of County organizations that are stakeholders in the watershed plan, i.e., organizations whose work or mission relates to the goals of the watershed plan, including conservation and environmental interests, historic preservation, development, business, and agriculture. The SWMS participant list may be used as an initial document for this inventory.
2. Convene a County-wide Stakeholder Steering Committee with representation of diverse interests to help guide the county-wide Watershed Management Planning process as previously outlined in Section III, D.4. This committee should include liaisons from any subwatershed committees (e.g., Catoctin) as well as resource people and Loudoun County staff.
3. Seek guidance from the County-wide Stakeholder Steering Committee and remain flexible in determining, for each individual watershed planning effort, the form of citizen involvement that is most appropriate for that watershed (e.g., stakeholder committees, task forces, ad hoc groups, focus groups, workshops, forums, presentations to homeowner associations (HOAs), etc.).
4. Consider using existing stakeholder groups (e.g., Loudoun Watershed Watch, Northern Virginia Business Industry Association, Soil and Water Conservation District, etc.) as forums to enlist citizen engagement in the Watershed Management Planning effort.
5. Involve schools and students, and use the schools as a forum to involve citizen in the planning process.
6. Recognize that parks and streamside trails are valued community resources that can be used to engage citizens in the planning and implementation processes.
7. Consider using citizen volunteers to conduct some of the public education and outreach initiatives during the planning process to relieve the burden on County staff and to engage citizens in working with their neighbors.

IX. Education

A. Informed Citizenry -- The Watershed Planning process should include a strong education component to create a more informed citizenry and to raise the awareness of citizens regarding watershed management needs. Further, the educational component should not be designed only for the Plan but also for its implementation.

B. Strategies -- The SWMS Team provides the following recommendations and guidelines for the County's outreach and education efforts.

1. Use existing education/outreach programs to avoid 'recreating the wheel'.
2. It is important that education and outreach efforts stay independent of the political arena.
3. It is important during the planning process and as part of the Plan itself to provide new septic owners with concrete skills and knowledge about monitoring and maintaining septic systems.
4. Use stream valley parks as a venue for education and outreach.
5. Use education and outreach efforts to raise awareness of existing regulations and the need for compliance.
6. It is important to involving the schools and students in the Watershed Management Planning process.

X. Policy and Regulations

A. Guidelines Regarding Policies and Regulations -- The SWMS Team agreed on the following guidelines for addressing policies and regulations in the Plan.

1. The Plan should be designed to integrate land use policies and tools such as Zoning Ordinance, the Facilities Standards Manual, transportation planning, etc.
2. The Plan should support compliance and enforcement of existing regulations and/or recommend changes to County regulations not supportive of watershed protection.
3. The Stormwater permitting program is still under development, and other programs will need to be used in conjunction with the Stormwater program for addressing watershed problems.
4. Watershed planning strategies should be mindful of Virginia's Dillon Rule legal framework. Legal or other expert opinions should be obtained when possible to resolve or clarify differing interpretations, such as inconsistent interpretations of court rulings. For instance, it would be helpful to obtain clarification about alternative septic systems, as there are different approaches being taken in Clarke and Fauquier Counties.
5. The Plan should incorporate and address the TMDL regulations and guidelines of the Virginia Department of Environmental Quality and Department of Conservation and Recreation.

B. Guidelines for Handling Issues -- The SWMS Team agreed on the following guidelines for how to handle issues that arise during the Watershed Management Planning process that impact policies and regulations. Some policy recommendations may apply to only one of the County's watersheds, while others may apply to the entire County.

1. Those policy recommendations that are applicable to the entire County should be lifted out of the individual watershed planning efforts, and placed on a separate and faster track for consideration by the Board of Supervisors (BOS),

so that the policy recommendations are not on hold while the remainder of that watershed plan is being finished.

2. Recommendations for policy changes should be fed into the General Plan as proposed amendments and, where applicable, as amendments to the Zoning Ordinance and Facilities Standards Manual (FSM).

XI. Coordination of County Authorities

A. Coordination Strategies -- Creating easy and efficient mechanisms for internal County coordination during the planning process and Plan implementation will be essential for success. Watershed planning is complex, involving multiple sources of data, multiple skill sets, and multiple County departments. To accomplish this goal, the SWMS Team recommends the following strategies.

1. **Designate Watershed Authority--** The BOS should designate where leadership for watershed management coordination will reside, a critical factor for effective coordination.

   a. In the short-term, for the purposes of the Watershed Management Planning effort, the SWMS Team recommends that the BOS designate either an existing Department or the Environmental Coordinator as the lead for the Watershed Planning effort.

   b. In the long-term, given the likely increasing importance of watershed management in future years, the SWMS Team urges the BOS to consider the creation of an Environmental Services Department in its long-term planning for County staff.

2. **Designate Coordination Committees--** In addition to designating an authority for watershed planning, it is important to establish clear standing mechanisms for coordination among the various County departments. The SWMS Team recommends that two levels of coordination be established.

   a. **Staff-Level--** First, to ensure a mechanism for staff-level technical communication, an inter-agency staff team should be established to meet regularly to coordinate and consult on the various watershed planning activities. This staff-level, inter-agency team may also include private partners as needed, although care must be given not to provide one stakeholder group an undue influence on decision making.

   b. **Leadership-Level--** Second, to ensure a mechanism for timely decision-making and guidance, an inter-agency leadership team should be designated to meet as needed to provide feedback, advice and guidance to the inter-agency staff team and watershed planning coordinator.

   c. The SWMS Team members emphasized that neither mechanism is considered sufficient on its own given the highly complex nature of watershed planning and the need for numerous County departments to work together, share resources, and engage in joint decision-making.

XII. Involvement of County Decision-Makers

A. BOS Representation -- The SWMS Team recommends that the BOS and incorporated Towns either (in order of preference) attend, or have representation, or be regularly informed during the Watershed Planning process. Additionally, the Planning Commission (PC) should be given the opportunity to participate and at a minimum should be kept informed throughout the process.

B. Progress Reports -- The SWMS Team recommends that presentations should be made to the following decision-making bodies throughout the watershed management planning process, in consultation with one or two Supervisors as appropriate. Presentations should reflect high-level County administration support by having the presentations opened by the County Administrator with technical information provided by the Environmental Coordinator or watershed planning program manager, as appropriate.

1. The Board of Supervisors
2. The Planning Commission
3. Incorporated towns (the Coalition of Loudoun Towns (COLT) may be an appropriate venue for these presentations, and it may also be appropriate to provide presentations to joint meetings of Town Councils and Planning Commissions)
4. The Water Resources Technical Advisory Committee (WRTAC)

XIII. Implementation of the Plan

A. Authority for Implementation -- The Plan should specify and clarify who will implement each component of the Plan, by when, and who has designated authority for implementation.

B. Coordination with Towns -- The County should consider adding a provision to the MOU currently under development between it and incorporated Towns to enable and assist implementation of the watershed plan**.**

C. Public-Private Partners -- It is important for the County to work with and encourage its private sector partners to continue their ongoing activities in the watersheds throughout both the planning and implementation phases of the watershed management planning process.

D. Implementation Steering Committee-- The SWMS team recommends that a County-wide Stakeholder Steering Committee be established to ensure continuing citizen involvement in monitoring and assisting with implementation

XIV. Implementation of the DOC

The SWMS Team recommends that on conclusion of its work, this Declaration of Cooperation be presented to the BOS and incorporated Towns for their review and approval. It should be presented to the Planning Commission and committees listed above (WRTAC, COLT) for their information.

XV. Evaluation of the Watershed Plan

The SWMS Team agreed that the Watershed Management Plans should include a strategy for revisiting and updating the Plans over time to ensure that they remain living documents. These plan reviews should be conducted by the County in collaboration with the County-wide

Stakeholder Steering Committee. An important component for assessing progress in achieving planning goals will be the water quality and stream health data collected under probability and trend monitoring approaches.

XVI. Issues requiring further discussion

TO BE FILLED IN

XVII. Specific Commitments of SWMS Team

Each signatory will create his/her own specific commitment that specifies such elements as:

1. Continuing role(s) of signatories through the Watershed Planning effort
2. Resources (monetary, in-kind, materials, etc.) willing to bring to Watershed Planning effort
3. Other commitments to the collaborative effort

TO BE FILLED IN

APPENDIX B

Objectives or Actions for the Watershed Plan (revised by the Goals subcommittee from the February Meeting – for further discussion during watershed planning phase)

- Economic Development and Watershed-Sensitive Growth
    - Ensure that development is site-appropriate and minimize the impacts of growth on natural resources.
    - Preserve property values.
    - Balance the watershed planning process; understand impacts of the watershed planning process with economic development, jobs, and housing needs with the expected increase in the growth rate in Loudoun County.
    - Implement LID comprehensively and appropriately.
    - Integrate the watershed planning process with the land development process, such as through special protection or overlay districts.
    - Integrate Smart Growth Principles into the Watershed Plan. Consider using the following definition from the Smart Growth Network/EPA: "*Smart growth is development that serves the economy, the community, and the environment. It changes the terms of the development debate away from the traditional growth/no growth question to how and where should new development be accommodated. Smart Growth is a planning concept or philosophy that attempts to make best use of land and infrastructure in order to derive economic and environmental benefits using compact design and other proven techniques*." For more definition visit this web site, http://www.epa.gov/smartgrowth/.
    - Create mechanisms to promote continued and new watershed-sensitive agricultural activities within the County (e.g., easements that promote farming on community open space or tax incentives or other alternatives to implement BMPs).
- Quality of Life
    - Create and preserve public access to streams, waterways, and corridors.
    - Create a linear stream valley park system that provides for buffer protection, recreational access, and educational opportunities.
    - Create program to support watershed goals on the individual home level (e.g., rain barrels)
    - Create mechanisms to support economically disadvantaged citizens so the needs of the watershed can be met (e.g., septic system repair, straight pipe elimination, LID concepts such as rain barrels).
- Regulations
    - Ensure regulation awareness and compliance.
    - Make sure regulations and ordinances support the watershed plan and modify regulations as necessary.
- Public involvement
    - Create ways that make it easy for citizens to be involved in the planning process, such as through attending a meeting of a citizen's group that might be difficult to reach otherwise.
    - Develop an educational component of the plan to raise awareness of citizens.

    - Engage citizens in the watershed planning process and implementation, and "go beyond the choir" in outreach efforts within the watershed to include people that might not otherwise be involved in the effort.
    - Have a strong education component in the watershed planning process to create a more informed citizenry (such as with septic system educational effort).
    - Localize citizen meetings that discuss local issues with respect to the watershed.
- Water Quality
    - Protect existing well water supply during the construction of new water wells.
    - Prioritize areas of focus within watershed specifically in regard to source water protection.
    - Protect, restore, and maintain healthy aquatic ecosystems (determine health of steams by macroinvertebrate studies and other means).
    - Maintain and restore riparian corridors.
    - Preserve wetlands.
    - Mitigate stream and wetland impacts within Loudoun County, mitigating within the affected watershed to the extent possible.
    - Develop enhanced stormwater design criteria.
- Data Management
    - Focus on or give priority to rectifying pre-existing conditions in the watershed planning effort (retrofits).
    - Inventory, map and monitor all water resources within the watershed.
    - Create a common database to store water quality and quantity data from all entities collecting data in the county
- Plan Management
    - Loudoun County Govt. (BOS) create staff and a natural resources Dept. empowered to do environmental review and recommend policy
    - Evaluate current and future planning and implementation funding options and create a template for funding opportunities including a cost benefit analysis of multiple funding options.